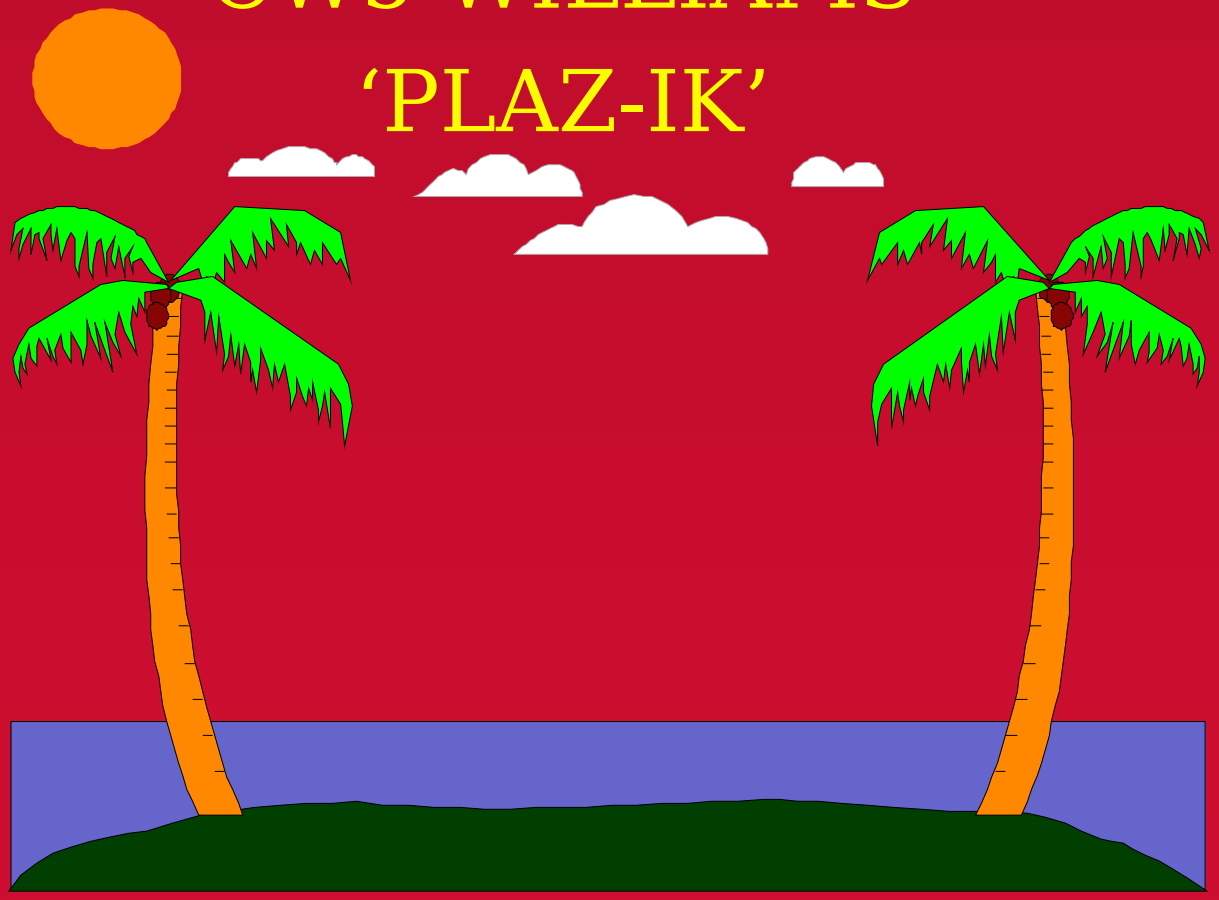
HEAT INJURY PREVENTION

CW5 WILLIAMS

‘PLAZ-IK’



REFERENCES

AR 40-5

FM 21-20-1

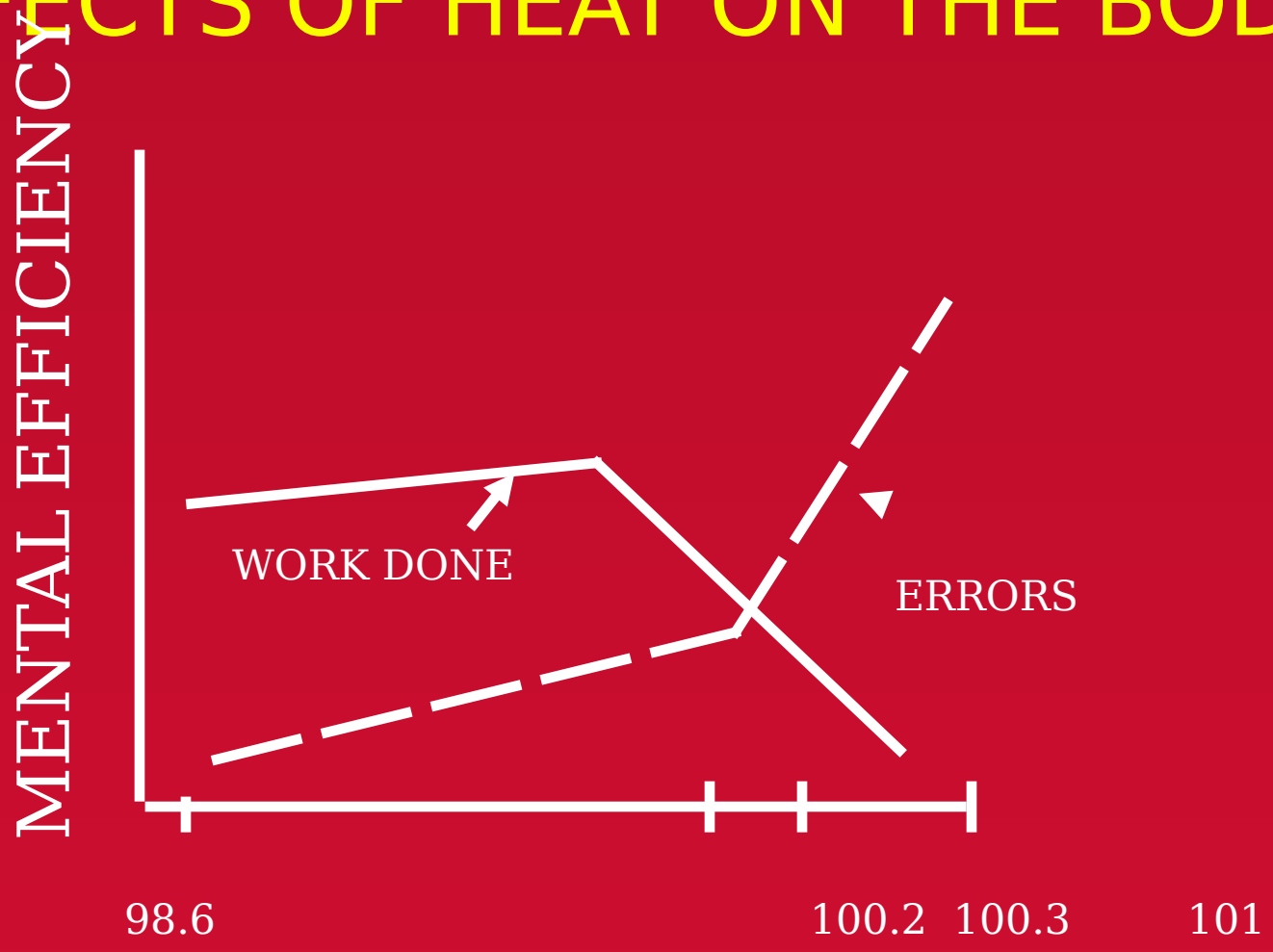
FM 1-301

FM 21-76

WHY IS HEAT PREVENTION IMPORTANT

- Combat capability is contingent upon the ability to adapt to the environment
- The body can survive only at a narrow range of core temperatures

EFFECTS OF HEAT ON THE BODY



HOW THE BODY RELEASES HEAT

- Radiation: transfer of heat from a hotter object to a cooler object though space by radiant energy

- Conduction: transfer of heat from molecule to molecule of adjacent objects

HEAT RELEASE CONTINUED

- Convection: transfer of heat in liquids or gases in which molecules are free to move

- Evaporation: heat lose involves the changing of a substance from its liquid state to its gaseous form

INFLUENCING FACTORS

- Air temperature
- Temperature of surrounding objects
- Sun’s radiant heat
- Relative humidity
- Air movement
- Amount and type of clothing worn
- Heat produced by the body

TYPES OF HEAT INJURIES

- Heat cramps
- Heat exhaustion
- Heat stroke

HEAT CRAMPS

- Excessive salt lose
- Painful cramps of muscles usually in arms, legs and stomach area
- Heat exhaustion may be present
- Body temperature may be normal
- Avoided by acclamation, proper nutrition and hydration

HEAT EXHAUSTION

- Excessive salt and water loss
- Skin is cool and moist; pulse is rapid and blood pressure may be low
- Other symptoms are profuse sweating, headaches, tingling in hands and feet, paleness, difficulty breathing, irregular heart beat, loss of appetite, nausea and vomiting
- Oral temperature may be lower than normal if the person is hyperventilating

HEAT EXHAUSTION CONT.

- Trembling, weakness, lack of coordination and a slight clouding of senses to momentary loss of consciousness complete the classic picture
- Avoided by proper work/rest cycles and good hydration

!!!!CAUTION!!!!

Those that suffered from heat exhaustion are ‘fragile’ and can have another episode easily

HEAT STROKE

- A medical emergency and death rate is high
- The body's heat regulatory mechanism stops functioning and the main avenue of heat loss is blocked
- Early signs are headache, dizziness, delirium, weakness, nausea, vomiting and excessive warmth
- Skin is usually hot, red and dry
- Body temperature may be as high as 106 F

HEAT STROKE CONT.

- The casualty may go through heat cramps or heat exhaustion; a sudden collapse and loss of consciousness followed by coma and convulsions may occur
- Sweating may or may not be present
- Avoided by proper work/rest cycles abd full hydration

!!!!CAUTION!!!!

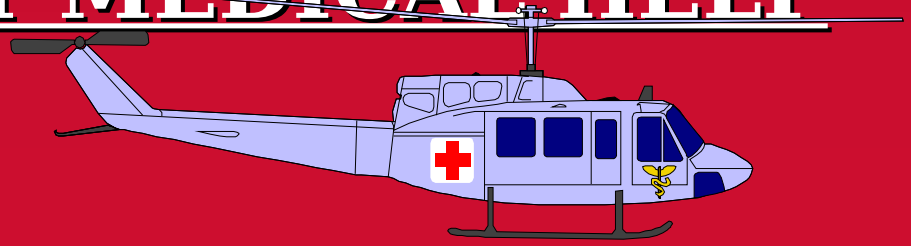
Heat stroke casualties are more susceptible to a second attack

FIRST AID FOR HEAT CRAMPS AND EXHAUSTION

- Move soldier to a shady area and loosen clothing if possible
- Slowly give large amounts of cool water
- Pour water on soldier and fan
- Elevate legs for exhaustion
- Watch soldier, if possible release from strenuous activity
- Get medical help if symptoms continue

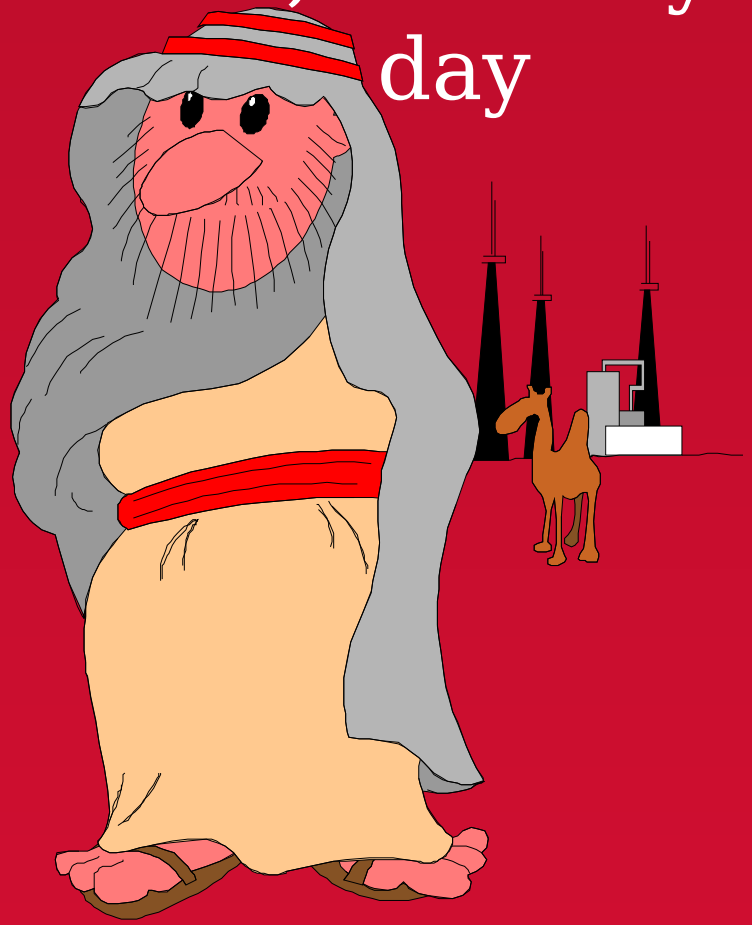
FIRST AID FOR HEAT STROKE

- Lower casualty's body temperature ASAP
- Elevate soldier's legs
- Have soldier drink water if possible
- **GET MEDICAL HELP**



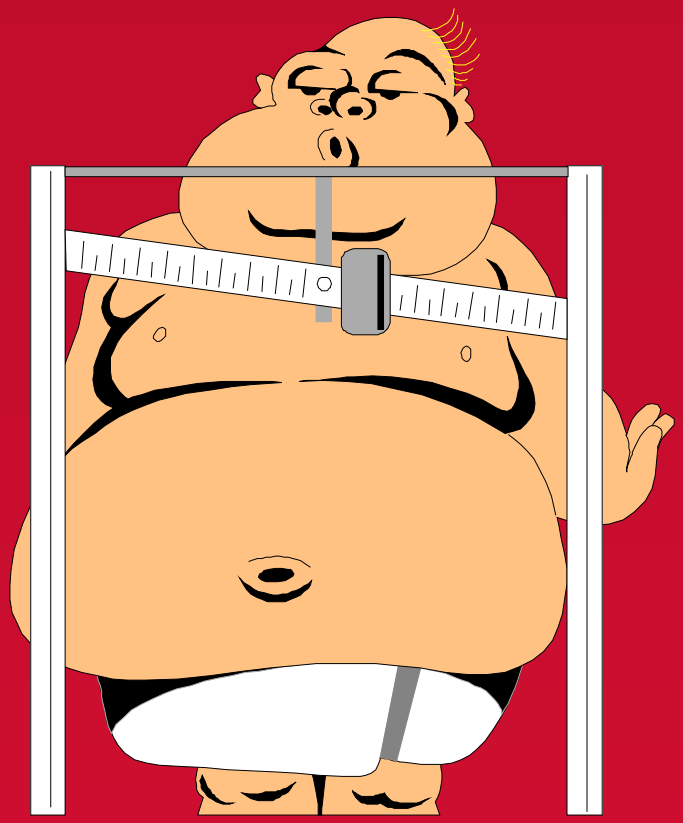
PREDISPOSING FACTORS

Acclimatization; 7-14 days, 2 hours day



PREDISPOSING FACTORS

Overweight and fatigue



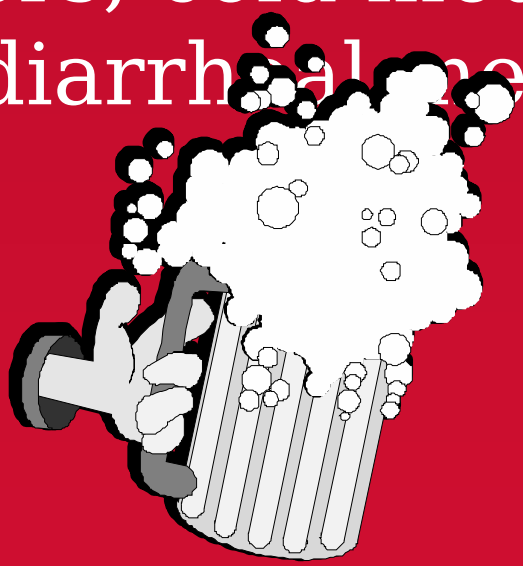
PREDISPOSING FACTORS

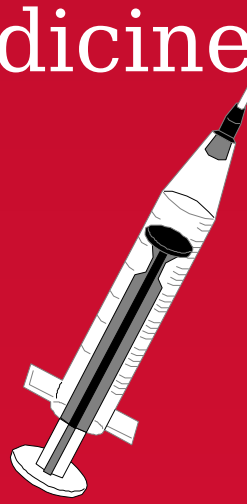
Heavy meals and hot food

PREDISPOSING FACTORS

Alcohol and drugs

- Drugs that inhibit sweating are atropine, antihistomines, some tranquilizers, cold medicine and some antidiarrheal medicines

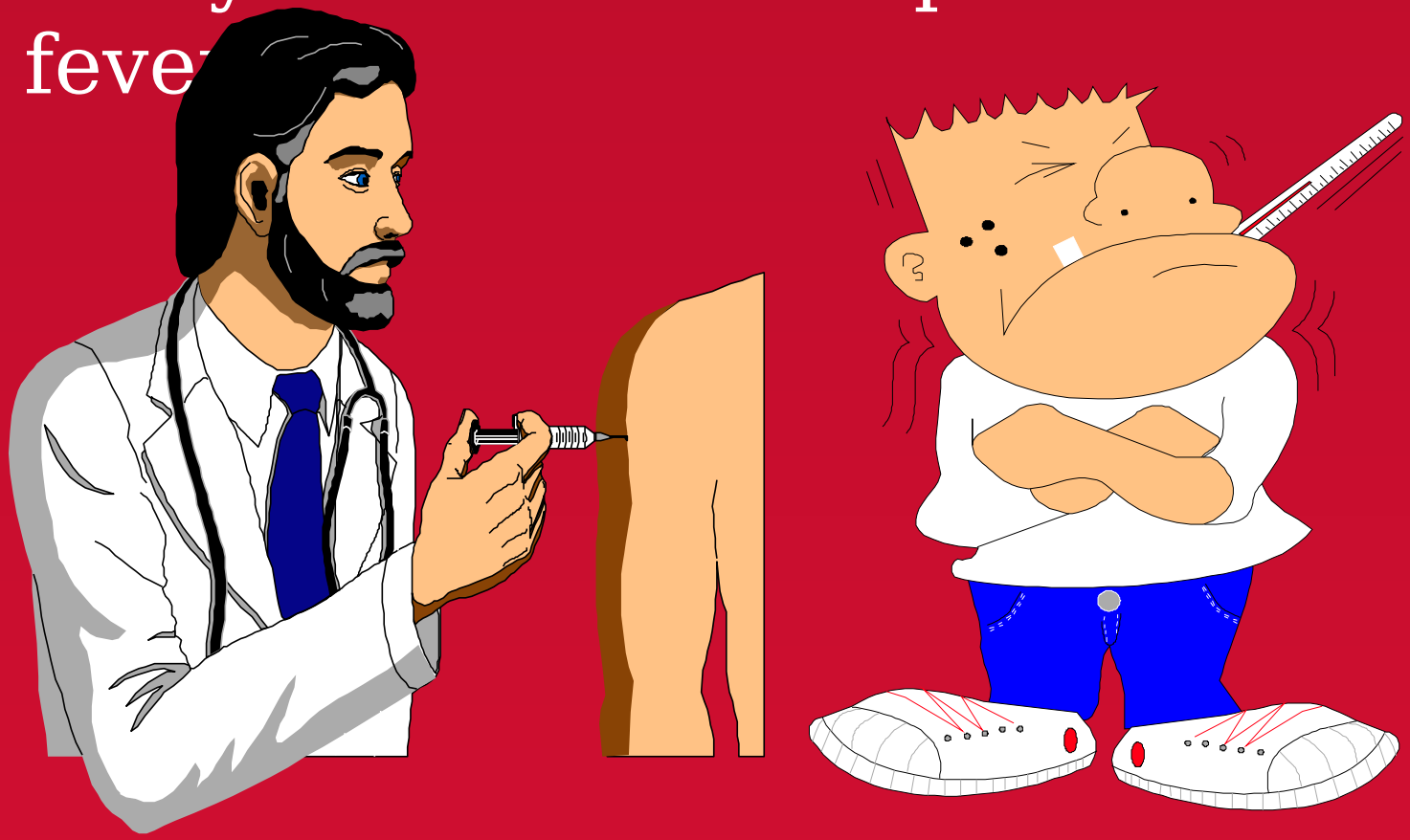




PREDISPOSING FACTORS

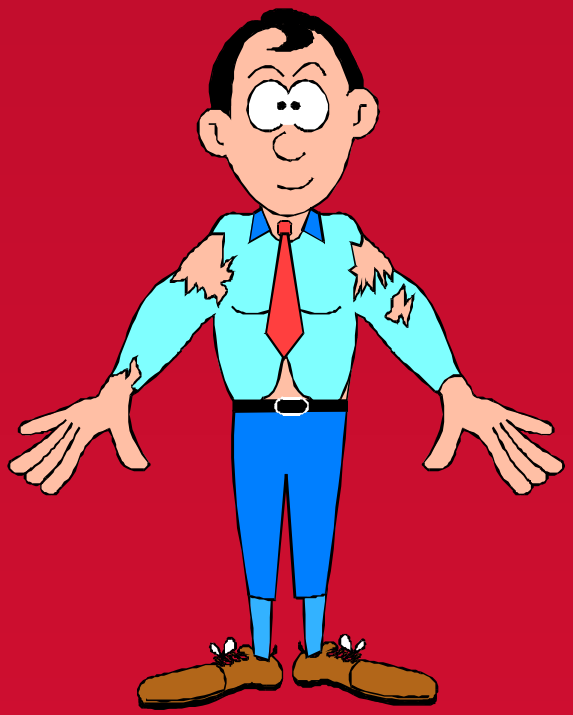
Fevers

- Many immunizations produce fever



PREDISPOSING FACTORS

Tight clothing



PREVENTING HEAT INJURIES

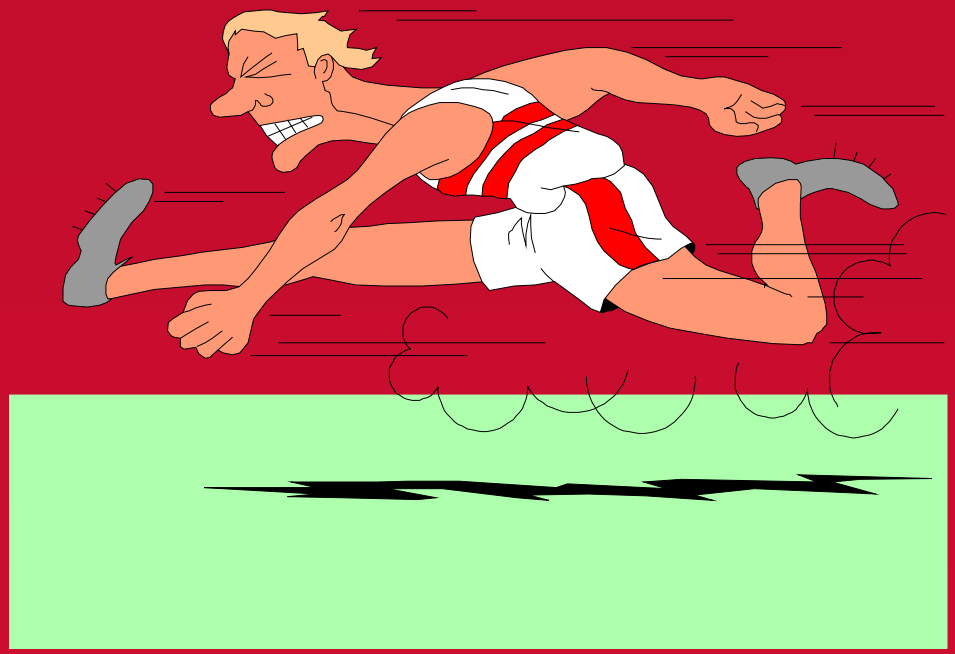
- Replace water loss; by sweating a person can lose more than 1 quart per hour
- Drink small amounts of water frequently regardless of thirst
- Use heat injury prevention chart as a guide
- Provide adequate water at all times

PREVENTING HEAT INJURIES

- Maintain acclimatization
  - Begin acclimatization with first exposure
  - Continue with two 50 minutes periods daily
  - Limit intensity and time of exposure for those not acclimatized
  - Acclimatization can be lost if remove from the hot enviroment for 1 month

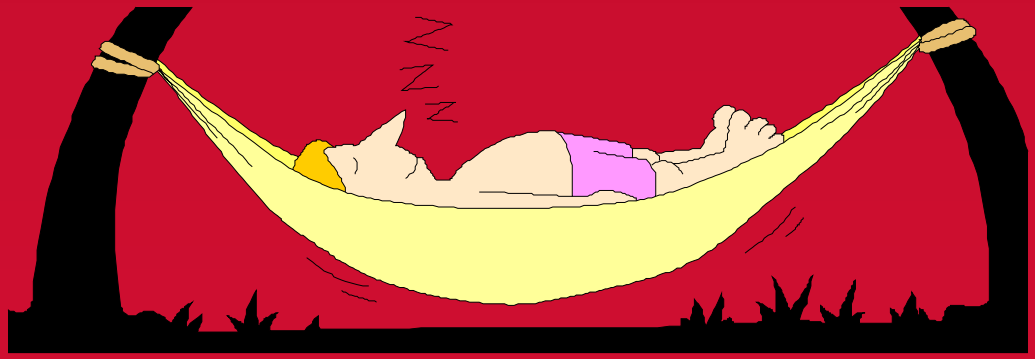
PREVENTING HEAT INJURIES

Maintain good physical condition



PREVENTING HEAT INJURIES

- Establish a good work/rest schedule; must be talored to fit climate, physical condition of personnel and military situation
  - Work in cooler hours
  - Avoid working in direct sunlight
  - Slowly increase exposure to those becoming acclimatized
  - Use heat injury prevention chart as a guide



!!!CAUTION!!!

Overexertion can cause heat injuries at temperatures lower than 75 degrees F on the WBG

PREVENTING HEAT INJURIES

- Use proper clothing to protect yourself
  - Loose clothing
  - Wear least amount when possible
  - Obtain the WBGT
  - Add 10 degrees to WBGT when wearing body armor or MOPP

REVIEW

- Types of heat injuries
- Factors that influence
- Prevention

QUESTIONS?